

PATENT
09/888,309
Docket 090/002

CLAIM AMENDMENTS

1 to 22. *CANCELLED*

23. *(Withdrawn)* A method for producing a neural cell population from human embryonic stem (hES) cells, comprising culturing progeny of the hES cells in a medium containing one or more added TGF- β Superfamily Antagonists so as to produce a population in which at least 50% of the cells express either polysialylated NCAM or β -tubulin III.
24. *(Withdrawn)* The method of claim 23, wherein the progeny are cultured in a medium containing noggin.
25. *(Withdrawn)* The method of claim 23, wherein the progeny are cultured in a medium containing follistatin.
26. *(Withdrawn)* The method of claim 23, wherein the medium further contains a neurotrophin.
27. *(Withdrawn)* The method of claim 26, wherein the neurotrophin is NT-3 or BDNF.
28. *(Withdrawn)* The method of claim 23, wherein the medium further contains a combination of factors selected from differentiation factors, neurotrophic factors, and survival factors.
29. *(Withdrawn)* The method of claim 23, comprising differentiating the hES cells by plating them onto a solid surface without forming embryoid bodies or cell aggregates.
30. *(Withdrawn)* The method of claim 29, wherein the solid surface comprises fibronectin or a polycation.
31. *(Withdrawn)* The method of claim 23, wherein at least 10% of the MAP-2 positive cells in the produced population express tyrosine hydroxylase.
32. *(Withdrawn)* The method of claim 23, further comprising combining the cell population with a compound, determining any phenotypic or metabolic changes in the cell that result from contact with the compound, and correlating the change with cellular toxicity or modulation caused by the compound.

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33. *(Withdrawn)* The method of claim 23, further comprising identifying an mRNA expressed at a different level in the neural cell population, relative to the level in undifferentiated hES cells; and preparing a polynucleotide comprising a nucleotide sequence of at least 30 consecutive nucleotides contained in the identified mRNA.
34. *(Currently amended)* ~~A system for producing differentiated cells~~
A plurality of cell cultures used during production of neuronal cells from human embryonic stem (hES) cells, comprising:
 - a first cell ~~population~~ culture, comprising the undifferentiated hES cells; and
 - a second cell ~~population~~ culture, comprising progeny of the hES cells in a medium containing one or more added transforming growth factor β (TGF- β) Superfamily Antagonists.
35. *(Currently amended)* ~~A system for producing differentiated cells~~
A plurality of cell populations generated during production of tyrosine hydroxylase positive neuronal cells from a line of hES cells, comprising:
 - said line of undifferentiated hES cells; and
 - a second cell population, comprising at least ~10% hES derived neural cells, identifiable by the criteria that they are progeny of said hES ~~cells~~ cell line, and express both microtubule-associated protein 2 (MAP-2) and tyrosine hydroxylase.
36. *(Previously presented)* The system of claim 35, wherein the second population has been produced by culturing in a medium containing one or more added TGF- β Superfamily Antagonists.
37. *(Previously presented)* The system of claim 36, wherein the second cell population has been produced by culturing in a medium containing noggin.
38. *(Previously presented)* The system of claim 36, wherein the second cell population has been produced by culturing in a medium containing follistatin.
39. *(Previously presented)* The system of claim 36, wherein the medium further contains a neurotrophin.
40. *(Previously presented)* The system of claim 39, wherein the neurotrophin is neurotrophin 3 or brain derived neurotrophic factor.
41. *(Previously presented)* The system of claim 34, wherein the second cell population is in a medium containing noggin.

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42. *(Previously presented)* The system of claim 34, wherein the second cell population is in a medium containing follistatin.
43. *(Previously presented)* The system of claim 34, wherein the medium further contains a neurotrophin.
44. *(Previously presented)* The system of claim 43, wherein the neurotrophin is neurotrophin 3 or brain derived neurotrophic factor.
45. *(Previously presented)* The system of claim 34, wherein the second cell population has been obtained by a process comprising differentiating the hES cells by plating them onto a solid surface without forming embryoid bodies or cell aggregates.
46. *(Previously presented)* The system of claim 45, wherein the solid surface comprises fibronectin or a polycation.
47. *(Withdrawn)* A method for testing a substance for its effect on differentiated cells, comprising combining the second cell population of the system of claim 34 with the compound, determining any phenotypic or metabolic change in the second cell population that results from contact with the substance, and correlating the change with cellular toxicity or modulation caused by the substance.
48. **CANCELLED**